/37 cont./

83. Since, as it appears, the person who asked me this question is one of those who believes in the heavenly paradise which the Indians live in, invented and perpetuated by arm-chair writers, who "have written pretty books to prove to us that the savage is natural man and that we could wish nothing more than to become more like him" (J. de Maistre), I shall not answer him with the well-worn "there is nothing to what has been said," but I shall /38/ say to him, without going into detail, that there is considerable exaggeration in the reports and information given by writers, avid for publicity at any cost, in almost everything that has been said about the robustness, longevity, corpulence, and healthiness of the Indians.

Eyewitnesses will be in agreement with me, and taught by painful experience and vigilance will not to let themselves be surprised by so many dithyrambs, such as are heard about native races, particularly if they have already disappeared. From long distances, long falsehoods.

773 826 84. These Indians, like most peoples of the earth, live looking up to past times, in which (they say), men were strong, corpulent, and even giants. They add, these Indians, for this purpose, the fact that their ancestors were of such extraordinary height that they made inscriptions on the high rocks and plucked fruit with their hands, which today must be picked with the use of ladders and hooks. They further say that their race, principally due to premature matrimonies, is now degenerating in such a way that its descendants will have to use ladders and hooks, or forks, to pick ají, which are but one meter high. This universal tendency, common to individuals and to peoples, has already been observed and satirized by Horace in his famous sentence: "In my opinion, any past time was better," which is attributed to old people.

141 165 This is pure legend; and what is certain is that the Indians are, indeed, not of tall stature nor do they attain any singular longevity.

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Fig. 14 — Kamarakoto Conuco.
Another part of the same conuco as in Fig. 13, here with a fairly pure stand of mature Manihot, the principal crop. The man (Antonio Montesdeoca, a Kamarakoto) is 1.55 meters in height.

302 Women clip the hair in a bang across the forehead and let it grow down the back, although here, too, it may be bobbed. A few girls cut the hair in European male fashion ("boyish bob"), but this is exceptional. Many of the men now cut their hair short all around in the commonest European style, but others have a bang on the forehead and a bob around the back. In both sexes the hair usually is left free, without braiding or other special doing up, and [301] generally unparted. It is not native custom to wear anything in the way of ornament or headgear in or on the hair, except for special occasions like dances.

142 There is some tendency toward abdominal protrusion, so common everywhere among starch-eating and often parasitized tropical peoples, but it is seldom pronounced and often practically absent. Some children and adults of both sexes have slender and graceful figures even in this respect and practically ● 141 all are otherwise beautifully built. The average height of the men is 160 centimeters (5 feet 3 inches) and of the women 147 centimeters (4 feet 10 inches), while the average male weight is about 56 kilos (124 pounds) and female weight about 47 kilos (104 pounds). The tallest Kamarakoto seen, a man of course, measured 168 1/2 centimeters (5 feet 6 inches) and the heaviest, also a man but not quite so tall, weighed about 63 kilos (140 pounds), although one man of the same stock but from outside the central group weighed about 70 kilos 142 (155 pounds). These Indians are thus small, by our standards, although they are not pygmies and are indeed rather large as Guayana Caribs go, as will be shown below. No definite obesity was seen, and striking thinness is almost equally rare.

[291] The feet, never in shoes and seldom in sandals, naturally tend to be broad and the toes, particularly the great toe, are divergent and mobile (Fig. 93). [518] They are used as extra fingers for many kinds of work, such as holding cloth when sewing or to pick up or pass along small objects without bothering to bend over.

304 Aside from tattooing and ear-piercing, mentioned on a previous page, 184 intentional mutilation or deformation is not practiced and even these relatively mild mutilations are indulged in only by a minority of the tribe. Unintentional 232 deformities are likewise unusual although I do not believe that deformed infants [847] are killed (information on this ticklish point is not reliable, but the fact that a few individuals are deformed suggests that the native claim is true). Out of 64 Kamarakotos definitely recorded in detail and about that many more examined more casually, one young adult had one short leg, apparently from an early fracture, another had the right external ear congenitally absent, a child (brother of the congenitally deformed young man just mentioned) had a deformity of the sternum, probably congenital, and another child had the eyes slightly crossed. There were all males and no deformed females were seen. Intellectual deformities, either lesions or intelligence below the normal range, are quite lacking as far as was observed. There are no mentally pathological or psychotic individuals

[Text continues on p. 286]

153 [158] There are no mentally pathological or psychotic individuals (although there are among the Taurepanes) and as far as one can judge in such an alien race the average of intelligence is well up to the Venezuelan standard, or that of any other civilized country. The most stupid man encountered was not of Kamarakoto descent and although below the Kamarakoto observed range was dull normal rather than truly abnormal in any way.

Measurements

●141 126 No special equipment for anthropometry was available, so that it seemed best to take only a few standard measurements on each of as many subjects as possible. In all, 68 individuals, mostly Kamarakotos, were measured in Kamarata and 25 Taurepánes in Santa Elena. As far as I know, these are the first measurements to be made on Arekunas of any sort, and relatively few are available for any living Venezuelan Indians.

Head calipers were devised on the spot from pieces cut from an empty gasoline tin, a clumsy instrument but one that proved to give consistent and accurate results within about 1%, or less, quite close enough for figures to be averaged and almost as close as can be obtained on a living subject with the best of means. Only the standard head length and width (with the index calculated from them) were taken. These were recorded and are here given throughout in millimeters and were read to the closest millimeter. Stature was measured against a post and span with a steel tape. These were read to the nearest half centimeter and are given in centimeters. Sitting height, similarly read and given, was obtained by having the subject sit on a box against a post, with the thighs approximately horizontal, the buttocks firmly against the post, and the torso as erect as possible with the eyes directed straight forward. The important element leg-length was not directly measured but was taken as the difference between stature (standing height) and sitting height, also given in centimeters to the nearest half centimeter. Weight could be only very crudely taken with game scales calibrated in pounds and readable only to the nearest 5 pounds, but accurate to that point. These weights are given in pounds. Despite this crudeness, it was worthwhile to investigate this point which seems never to have been studied in any allied group and the averages are generally reliable to within about a pound. Weights of Taurepánes were not taken.

)126 Besides these measurements, the detailed records include the Spanish name (if any) of each individual, estimated or relative age, place of residence, notes on personal appearance, and whenever accurately possible relationship to other recorded individuals, marital state, and numbers and sexes of children living and dead. I also have at least one and sometimes several photographs of each recorded individual. These detailed records are permanently filed and available to anyone interested, but they are not here published. For present

126 purposes analyses and comparisons of the various groups are adequate and more important and comprehensible than would be publication of all the raw data.

Kamarakoto measurements may be assumed to include only individuals from what I have called the central group. More remote individuals could not have been included in the correct proportions and would have made the homogeneity and representativeness of the sample uncertain. The central group samples are excellent and give good information on the population even though the samples are small. They necessarily include only individuals who visited camp and could be persuaded to be measured,[237] but any bias caused by this selection was carefully watched for and is believed not to have affected the final sample. The various subsamples (adult males, etc.) have been checked for age, geographic, and family distribution, and found to be distributed in all these respects in a way that would normally occur in completely random sampling with the entire central group available.

126 561 Measurements of children, although usually avoided by anthropologists, were also taken because they can provide interesting data on growth and no such data have hitherto been available for any comparable group. The records were, of course, carefully isolated from those of the adult groups. For the latter, three samples were separated: young adult males, fully adult males, and adult [589] females. The first is the bachelor group, which I have mentioned before as a concomitant of polygamy. They are fully mature but young men (probably around 20 years of age) who are considered to be adult and marriageable but are not yet married. At the time of recording they were believed to be fully grown, but the figures now reveal that as a group they are slightly but significantly smaller than the fully adult men. The latter are those who are certainly fully grown, married, and with children and include various ages, probably all between 20 and 50, in about the same proportions as the tribe as a whole. Among the women no young adult group can be distinguished and perhaps one or two recorded individuals had not quite reached their full stature, but if so this cannot have altered the data significantly.

128 ●141 In all the following tabular matter R = observed range, M = arithmetic mean, = standard deviation, V = coefficient of variation, d = deviation from the arithmetic mean, N = size of sample, P = probability of equal or greater deviation in random sampling of one population (as a fraction of 1.00), and X = an individual measurement, standard, not probable, errors are given. The word "significant" is used in all following paragraphs only in a fully technical sense and means that an objective statistical test of significance (using d/ = 3 or P = .01 as the limit unless otherwise stated) has been applied, even when the details or numerical results of such a test have not been explicitly published here.

141 The pertinent data for the three adult Kamarakoto groups are as follows:

237 [see footnote on pp. 334-335, category 116 - Analyst]

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Fully Adult Male Kamarakotos: N = 15

	R	M	σ	V
Head length	175 - 194	186.9±1.4	5.5±1.0	3.0±.5
Head breadth	150 - 160	154.2± .9	3.6± .7	2.3±.4
Head index	77 - 86	82.2± .6	2.3± .4	-------
Stature	147 1/2 - 168 1/2	160.0±1.3	5.0± .9	3.1±.6
Sitting height	79 - 90	84.8± .8	3.1± .6	3.6±.7
Stature less sitting height	68 1/2 - 81 1/2	75.2± .8	3.3± .6	4.3±.8
Span	153 - 180	169.0±1.7	6.5±1.2	3.9±.7
Weight	105 - 140	123.7±2.8	10.7±2.0	-------

Young Adult Male Kamarakotos: N = 9

	R	M	σ	V
Head length	173 - 190	182.7±1.4	4.2±1.0	2.3±.5
Head breadth	143 - 158	152.4±1.5	4.6±1.1	3.0±.7
Head index	78 - 86	83.2± .8	2.5± .6	-------
Stature	150 - 162	155.0±1.0	3.1± .7	2.0±.5
Sitting height	77 - 86 1/2	80.9± .9	2.6± .6	3.3±.8
Stature less sitting height	71 - 76 1/2	74.1± .6	1.7± .4	2.3±.5
Span	155 - 170	162.4±1.5	4.5±1.1	2.8±.7
Weight	105 - 125	112.2±2.1	6.3±1.5	-------

For this group the head index (which is not significantly correlated with age in any of my samples) is not significantly different from that of the fully adult group. The head breadth and the derived figure of stature less sitting height are not technically significantly different from the adult group as isolated figures, but this may certainly be taken as a chance result and the difference shown may, on broader grounds, be taken to characterize the populations. The other means are all decidedly significantly different from those for the fully adult group, the weight most so, and prove that this sexually mature and apparently adult group is not, in fact, full-grown, or in other words that some adult growth occurs.

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Adult Female Kamarakotos; N = 14

	R	M	σ	V
Head length	169 - 186	177.1 ±1.3	4.7 ± .9	2.6 ±.5
Head breadth	146 - 159	150.9 ± .9	3.3 ± .6	2.2 ±.4
Head index	80 - 88	84.7 ± .6	2.4 ± .5	-------
Stature	136 - 155 1/2	146.9 ±1.2	4.6 ± .9	3.2 ±.6
Sitting height	71 - 82	77.1 ± .7	2.8 ± .5	3.6 ±.7
Stature less sitting height	65 - 77 1/2	69.8 ± .8	3.2 ± .6	4.5 ±.9
Span	143 - 163 1/2	152.0 ±1.4	5.2 ±1.0	3.4 ±.6
Weight	80 - 120	103.6 ±3.3	12.2 ±2.3	-------

[[28]] The Taurepán samples are not as good as the Kamarakotos. They are somewhat too homogeneous, being mostly from one section of this far-flung tribe and including too high a proportion of individuals of about the same age to be surely representative of the tribe as a whole. Although all are adult, the males, particularly, average younger than the fully adult Kamarakoto male sample and younger than the adult Taurepán male population. The measurements cannot, however, be very different from the Taurepán norms, and their use in comparisons cannot be seriously misleading if their incompletely representative character is borne in mind.

Adult Male Taurepanes; N = 12

	R	M	σ	V
Head length	179 - 191	184.3 ±1.1	3.7 ± .8	2.0 ±.4
Head breadth	147 - 161	154.2 ±1.3	4.5 ± .9	2.9 ±.6
Head index	79 - 89	83.2 ± .8	2.7 ± .6	-------
Stature	152 - 161	156.9 ±1.0	3.3 ± .7	2.1 ±.4
Sitting height	79 - 87	82.4 ± .6	2.1 ± .4	2.5 ±.5
Stature less sitting height	70 - 79 1/2	74.5 ± .8	2.8 ± .6	3.8 ±.8
Span	156 - 170	164.4 ±1.2	4.2 ± .9	2.5 ±.5

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Adult Female Taurepanes: N = 11

	R	M	σ	V
Head length	169 - 183	176.5 ±1.3	4.4 ± .9	2.5± .5
Head breadth	145 - 157	150.6 ±1.2	3.9 ± .8	2.6± .6
Head index	81 - 91	85.4 ± .9	2.9 ± .6	-------
Stature	136 1/2 - 152	145.8 ±1.3	4.3 ± .9	3.0± .6
Sitting Height	74 - 81	77.3 ± .8	2.5 ± .5	3.2± .7
Stature less sitting height	62 - 75 1/2	68.5 ±1.1	3.7 ± .8	5.3±1.1
Span	142 - 164	153.1 ±1.7	5.5 ±1.2	3.6± .8

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144 The values of V in all five samples are strikingly small and uniform, especially if that for stature less sitting height be discounted as relatively unreliable because it is based on a calculated and not directly measured dimension. Even including this, all the V's are between 2.0 and 5.3 and excluding it they are between 2.0 and 3.9, a remarkably low and narrow range for such coefficients. In dealing with linear dimensions of mammals, generally, such figures characterize samples from a pure local race, and they strongly suggest that these [582] [648] Indians are of relatively uniform racial or genetic constitution. This is in seeming contradiction with the known fact that intermarriage with other tribes has occurred, but in the first place such intermarriage is exceptional, and in the second place, as far as known for the Kamarakotos at least, it has almost always been with Indians that were themselves almost or quite indistinguishable physically from the Kamarakotos, usually with other Arekumas, sometimes but very rarely with stocks as distant as the Akawais, who still do not differ very noticeably from the Arekumas.

141 All these measurements vary little, but generally speaking, sitting height, leg length, and span are more variable than the head dimensions or stature. Weight, although a value of V for it could not legitimately be compared with the others, is evidently more variable than any of the linear dimensions, as is inevitable.

Although a few individuals (among the males only) fall nominally into the mesaticephalic class, both Kamarakotos and Taurepanes are decisively brachycephalic as a whole. One individual had the remarkably high index 91, and averages for all groups are well above 80.

Comparisons

141 It is manifest that the Kamarakotos show very marked sex differences of the expected sort, that is, that the men average noticeably larger than the women in almost every dimension. This is confirmed by the following table:

Comparison of Male and Female Adult Kamarakotos

	a. Male mean	b. Female mean	a - b
Head length	186.9	177.1	9.8
Head breadth	154.2	150.9	3.3
Head index	82.2	84.7	-2.5
Stature	160.0	146.9	13.1
Sitting height	84.8	77.1	7.7
Stature less sitting height	75.2	69.8	5.4
Span	169.0	152.0	17.0
Weight	123.7	103.6	20.1

These differences are all statistically significant. The only one not obviously so is that of the head indices and for these means d/σ is 2.9, which indicates almost certain significance. It is somewhat unexpected to find that in this tribe there is a definite secondary sex distinction in head proportions and that women are on the average distinctly more brachycephalic than men.

The same sort of difference appears among the Taurepáne and Farabee also noted it among the Makuchis and some other British Guiana tribes, including some Arawaks. The difference has not been shown conclusively to be significant in these cases, but it is so widespread and consistent that it doubtless will prove to be statistically significant.

162 142 [101] Living within the Kamarakoto tribe as members of it there are two adult Indians (also several children, not specifically discussed here) who are not of Kamarakoto descent. Their own statement is that they are Arekunas from Luepa (i.e. from anywhere in the northern Gran Sabana). I do not know the Arekunas of that region well, although I have seen some twenty or thirty of them, but these two individuals have a distinctly non-Arekuna look (Fig. 95) and it is at least possible that their ancestry was partly or wholly non-Arekuna, although doubtless Carib. In the measurements here used, they compare as follows with the comparable pure Kamarakoto samples. They are, of course, in all cases excluded from the group data for Kamarakotos.* 141 [128]

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Comparison of No. 25 (known as "Simon Bolivar") Adult Male, with Adult Male Kamarakotos

	X	d	d/σ
Head length	188	+ 1.1	.2
Head breadth	165	+10.8	3.0
Head index	88	+ 5.8	2.5
Stature	158 1/2	− 1.5	.3
Standing height	84 1/2	− .3	.1
Span	167	− 2.0	.3
Weight	140	+16.3	1.5

Comparison of Head Dimensions of No. 25 with Adult Male Taurepanes

	X	d	d/σ
Head length	188	+ 3.7	1.0
Head breadth	165	+10.8	2.4
Head index	88	+ 4.8	1.8

Comparison of No. 14 (known as "Rosa Bolivar"), Adult Female, Sister of No. 25, with Adult Female Kamarakotos

	X	d	d/σ
Head length	183	+5.9	1.3
Head breadth	160	+9.1	2.7
Head index	87	+2.3	1.0
Stature	148 1/2	+1.6	.3
Sitting height	79	+1.9	.7
Span	157	+5.0	1.0
Weight	100	−3.6	.3

[144] Simon's head is significantly broader than those of the Kamarakotos and is confirmatory of the belief that he has some non-Arekuna blood. His head index is not quite significantly greater (P is less than .02 but greater than .01). Rose Bolivar's head is about at the limit of significance in its greater breadth in comparison with Kamarakoto (P slightly less than .01), but her index is not shown to be significantly different. In other dimensions these Indians fall well within the Kamarakoto normal range. The difference of Simon's head breadth

●141 from the Taurepán sample is not significant (P somewhat greater than .02) but in view of the other relationships this can probably be imputed to the deficiency of that sample. It is, however, to be kept in mind as a possibility that these people might belong to a group that is more variable than are the Kamarakotos in this respect, rather than one that is definitely more broad-headed. This would not alter the fact that they are different.

[124] I was able to measure three adult male Arekunas from south and west of Kamarata, typical of the Indians of outlying regions, with respect to the central Kamarakotos, whose pertinence to this tribe is dubious. They compare as follows with the fully adult Kamarakotos:

Comparison of Three Adult Male Arekunas from the Region of the Caroní with Adult Male Kamarakotos

Measurement	Individual No.	X	d	d/σ
Head length	1	195	+ 8.1	1.5
	2	181	− 5.9	1.1
	3	188	+ 1.1	.2
Head breadth	1	155	+ .8	.2
	2	148	− 6.2	1.7
	3	157	+ 2.8	.8
Head index	1	79	− 3.2	1.4
	2	82	− .2	.1
	3	84	+ 1.8	.8
Stature	1	165	+ 5.0	1.0
	2	164 1/2	− .5	.1
	3	172 1/2	+12.5	2.5
Sitting height	1	89	+ 4.2	1.4
	2	82	− 2.8	.9
	3	79	− 5.8	1.9
Span	1	175	+ 6.0	.9
	2	172	+ 3.0	.5
	3	175	+ 4.0	.6
Weight	1	155	+31.3	2.9
	2	115	− 8.7	.8
	3	115	− 8.7	.8

No. 3 (Fig. 94) is taller than any central Kamarakoto but the difference is not surely significant (P is between .02 and .01). No. 1 is distinctly outside the Kamarakoto normal range in weight (P definitely less than .01), but little

/14/ importance can be given a character so largely dependent on environment, even over a short period of time, when the environment of this Indian certainly is different (in whatever way) from that of the central group. In other respects these Indians are well within the Kamarakoto range, as they are also in the less measurable characteristics of appearance, and there is no reason to separate them physically from that tribe or at least from the group of Arekunas of this general region.

Kamarakotos and Taurepánes compare as follows:-

Comparison of Adult Male Kamarakotos and Taurepanes

	a. Mean of 15 Kamarakotos	b. Mean of 12 Taurepanes	a-b
Head length	186.9	184.3	2.6
Head breadth	154.2	154.2	0
Head index	82.2	83.2	-1.0
Stature	160.0	156.9	3.1
Sitting height	84.8	82.4	2.4
Stature less sitting height	75.2	74.5	.7
Span	169.0	164.4	4.6

None of these differences is significant (d/σ is less than 2.5 in all cases) and as far as these measurements go no distinction between male Kamarakotos and Taurepánes is shown. The fact that the Taurepánes appear to be slightly [145] smaller in all dimensions is due to the observed fact that the average age of the individuals in the Taurepán sample was slightly less, and some adult growth occurs in these groups.

Comparison of Adult Female Kamarakotos and Taurepanes

	a. Mean of 14 Kamarakotos	b. Mean of 11 Taurepanes	a-b
Head length	177.1	176.5	.6
Head breadth	150.9	150.6	.3
Head index	84.7	85.4	- .7
Stature	146.9	145.8	1.1
Sitting height	77.1	77.3	- .2
Stature less sitting height	69.8	68.5	1.3
Span	152.0	153.1	-1.1

These differences are all far from significant. As regards these measurements the Kamarakoto and Taurepán samples, both male and female, could have been drawn from a single very uniform population. The suggestion is that the Arekumas as a whole present a rather uniform physical type, which is fully supported by the more subtle factors of appearance, and, of course, that the Taurepánes are Arekumas, which is further supported by their culture and language.

The Kamarakoto and Taurepán samples are absolutely comparable (allowing for recorded defects of representation in the latter) because taken by the same observer in the same way. Wider comparison introduces a possible personal element but there is little reason to doubt that Farabee's measurements, the only ones of much importance for wider comparison, are sufficiently comparable. His male Makuchi sample is larger than any one of my samples (30 to 33) and has an apparently representative age distribution. His corresponding female sample is small (10 to 13) but sufficient for comparison. It contains two fairly distinct age groups within the adult series, one of five women 25 and below (by his estimates of age) and 141.3 cm. in average height and the other of four women 40 and above and 144.4 cm. in average height, so that two adult growth levels occur, but the sample as a whole seems to be of about the same average age as mine.[238]

The comparisons are as follows:-

Comparisons of Means for 15 Kamarakoto Adult Males and 30 to 33[239] Makuchi Adult Males, the latter after Farabee

	a. Kamarakotos	b. Makuchis	a-b	P
Head length	186.9	184	2.9	.11
Head breadth	154.2	148	6.2	<.01
Head index	82.2	81.0	1.2	.13
Stature	160.0	156.0	4.0	<.02>.01 (nearly .01)
Sitting height	84.8	81.0	3.8	<.01
Stature less sitting height	75.2	75.0	.2	---
Span	169.0	164.3	4.7	.02

238-239 [see footnotes on p. 335, category 116 -Analyst]

[text continues on p. 296]

P M 141

Comparisons of Means for 14 Kamarakoto Adult Females and 10 to 13[240] Makuchi Adult Females, the latter after Farabee

	a. Kamarakotos	b. Makuchis	a-b	P
Head length	177.1	172	5.1	<.02>.01
Head breadth	150.9	144	6.9	<.01
Head index	84.7	84.0	.7	---
Stature	146.9	142.8	4.1	.02
Sitting height	77.1	74.9	2.2	.07
Stature less sitting height	69.8	67.9	1.9	---
Span	152.0	151.9	.1	---

P M [128]

In making the comparisons the standard errors of the differences between the means have been calculated by the formula assuming (as is the case) that the populations are distinct and comparing only means. Where no value for P is given, the deviation is obviously not significant.

In every case the Kamarakoto averages are larger than the Makuchi, although the differences are not all statistically significant. Among the men, the Kamarakotos almost surely are significantly taller, have wider heads, and greater sitting height. The leg length is not significantly greater, so that the greater height is in the torso and the legs are proportionately shorter. The span is greater. The Kamarakoto women likewise are taller, probably significantly, and have larger heads than the Makuchis. The span is not absolutely greater and is proportionately less, but not surely significantly. The torso-leg proportions, unlike those of the males, are about the same in Kamarakoto and Makuchi females.

P M [101]

That the Kamarakotos and Makuchis are physically distinct, despite their resemblance in appearance, culture, and language, is evident even on the basis of these few measurements. This tends to support my classification of Makuchis in a general Roroimá group but as distinct from the Arekumas, with both Kamarakotos and Taurepánes placed as tribes of Arekumas.[241]

Growth

P 128 145 [114]

Absolute growth plotted against time cannot yet be studied for these or any allied Indians because none of them are of known age and no interested and competent observer has ever lived among them long enough to follow the growth of individuals over a known span of years. Estimates of absolute age are manifestly too unreliable to serve as a basis for detailed study. Relative age can, however, be judged within limits narrow enough to be of some use. Thus the

240, 241 [see footnotes on p 335, category 116 – Analyst]

128 15 male children of pure central Kamarakoto stock that I measured can, with
145 a single exception, be placed with almost complete certainty into three groups
141 such that the relative ages of the groups are known and it is known that there is no overlap between them, even though the relative ages of individuals within a single group may still be uncertain. Omitting the one doubtful case, (who might belong either in group C or group D), the mean measurements of these groups, in comparison with young adults and full adults, are as follows:

Thus the

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Growth in Male Kamarakoto

	a. Mean of 4 children about 2-5 years old	b. Mean of 5 children about 7-9 years old	c. Mean of 5 children about 10-13 years old	d. Mean of 9 young adults	e. Mean of 15 full adults
Head length	171.5	175.8	180.4	182.7	186.9
Head breadth	141.5	146.6	148.2	152.4	154.2
Head index	82.5	83.6	81.9	83.2	82.2
Stature	95.4	128.2	144.7	158.0	169.0
Sitting height	54.0	67.8	76.2	80.9	84.8
Stature less sitting height	41.4	59.0	69.4	74.1	75.2
Span	96.0	132.4	150.2	162.4	169.0
Weight	26.3	58.0	81.0	112.2	132.7

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Only eight female children were available for measurement, the females in general being less employed by us as workers and somewhat shyer about visiting our camp, where measurement was practicable. Three of these were of so nearly the same age that relative ages could not be certainly judged, but the others fell into a clear sequence, as follows:

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Growth in Female Kamarakotos

	No. 52, about 3 years old	No. 64, about 5 years old	Mean of Nos. 29, 32 & 51, about 6-7 years old	No. 50, about 8 years old	No. 27, about 10-11 years old	No. 61, about 15 years old	Mean of 14 adults
Head length	158	170	166	181	177	173	177.1
Head breadth	136	143	140	148	150	157	150.9
Head index	86	80	82	82	85	91	84.7
Stature	92	107	113	134	143	146 1/2	146.9
Sitting height	51 1/2	59	60 1/2	73	73	76	77.1
Stature less sitting height	40 1/2	48	52 1/2	61	70	69 1/2	69.8
Span	92	108	114	138	148	157	152.0
Weight	30	35	40	65	85	85	103.6

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The available data for male children and young adults, of whom 24 of central Kamarakoto stock were measured, in addition to the 15 older adults, provide (apparently for the first time) an opportunity to study relative growth in such a relatively pure and primitive human stock. This rather lengthy study is not within the proper scope of the present work, but in order to make the important data all available here in most convenient form, a tabulation of the linear measurements of these individuals (omitting the oldest group in which no determinable growth occurs) is presented below. Logarithms are given instead of raw measurements because the latter should be turned into logarithms for clearest study of relative growth in any case and one step is thus saved the reader without using any more space here. The sequence is that of stature.

Logarithms of Linear Measurements of Male Kamarakotos

Record No.	Stature	Sitting height	Stature less sitting height	Span	Head length	Head breadth	Guessed age
35.	1.9320	1.6946	1.5563	1.9395	2.2175	2.1335	2
68.	1.9335	1.7160	1.5563	1.9395	2.2380	2.1461	2 1/2
30.	2.0149	1.7634	1.6580	2.0128	2.2430	2.1761	4
67.	2.0191	1.7520	1.6812	2.0294	2.2380	2.1461	4
63.	2.0828	1.8195	1.7404	2.0899	2.2455	2.1584	7-8
33.	2.0969	1.8261	1.7634	2.1004	2.2430	2.1732	7-8
37.	2.1038	1.8228	1.7818	2.1206	2.2355	2.1523	8-9
54.	2.1106	1.8261	1.7924	2.1271	2.2455	2.1675	8-9
36.	2.1206	1.8603	1.7745	2.1038	2.2553	2.1790	9-10
48.	2.1492	1.8808	1.8129	2.1492	2.2553	2.1761	12-13
46.	2.1538	1.8603	1.8451	2.1761	2.2480	2.1335	12-13
47.	2.1568	1.8692	1.8420	2.1732	2.2577	2.1553	12-13
16.	2.1703	1.8779	1.8603	2.1931	2.2480	2.1644	10
40.	2.1718	1.8949	1.8451	2.1903	2.2718	2.1931	12-13

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Logarithms of Linear Measurements of Male Kamarakotos (Cont.)

Record No.	Stature	Sitting height	Stature less sitting height	Span	Head length	Head breadth	Guessed age
15.	2.1761	1.8865	1.8633	2.1903	2.2601	2.1847)	Young
62.	2.1790	1.9031	1.8513	2.2014	2.2577	2.1790)	adult, ca.
22.	2.1875	1.9031	1.8692	2.2014	2.2648	2,1553)	16-21 (ex-
23.	2.1875	1.8976	1.8751	2.2095	2.2380	2.1703)	cept No.
18.	2.1889	1.9165	1.8573	2.2304	2.2648	2.1875)	53 who is
58.	2.1917	1.9031	1.8779	2.2122	2.2625	2.1790)	large but
24.	2.1945	1.9031	1.8837	2.2135	2.2672	2.1987)	younger
10.	2.1973	1.9217	1.8692	2.2068	2.2788	2.1959)	than others
53.	2.1973	1.9004	1.8921	2.2175	2.2648	2.1818)	in this
41.	2.2095	1.9370	1.8779	2.2279	2.2601	2.1959)	group, ca.
							14).

P
123 Mrs. Angel to write down, closely resembles the Kamarakoto words for "die"
126 or "dead." I went over to Uruyén, gathered some of the Indians, explained what "eight" means, and to prove it and reassure them taught some of them to count from one to ten in English — an accomplishment that may puzzle future visitors. They then retumed to be measured and no further serious difficulty arose.

M
128 238. He has only one woman estimated to be older than 25 but younger
141 than 40, and I have omitted her from the partial averages given above. His
114 male series does not have such a gap.
P
M
141 239. Thirty-three for head measurements, 30 for the others

P
M
114 241. Farabee's outstanding general conclusion was that forest tribes are
128 larger than sabana tribes regardless of race, i.e. that forest Caribs more re-
141 semble forest Arawaks than they do sabana Caribs. He believes that the dif-
101 ference is an effect of environment, especially food. That the somatic differences of these various tribes are to some extent influenced by environment is possible, even probable, but Farabee's conclusion does not follow from his own figures if these are more carefully and correctly examined, and it is quite disproven by the present new data. Although manifestly allied to the Makuchis and just as typically sabana Indians, the Arekunas are at least as large as any of Farabee's forest Caribs, or even Arawaks, which may average a little larger than Caribs in this region. Since Farabee's sabana Caribs are simply the Makuchis, his data would tend to show not an influence of environment regardless of race, as he supposes, but a strictly racial difference. His figures merely suggested, and mine confirm, that the Makuchis are small Caribs, not that sabana Indians are small.

Moreover he has drawn conclusions that his data cannot prove, even if these conclusions are true. His samples of forest tribes are for the most part very inadequate and potentially misleading, and these tribes apparently differ considerably among themselves so that to lump them as one thing and to compare this very arbitrary and artificial average with the Makuchis, a good sample that is of one tribe, can prove nothing. He has also failed to show that his sample differences are significant regarding the populations, or even to consider this problem. It is evident that very few of them, even those used as a basis for strong conclusions, are really significant.